In the Specification:

Please replace the paragraph beginning on page 1, line 20, with the following rewritten paragraph:

The configuration of a liquid crystal display panel generally has a pair of opposing substrates spaced appropriately apart, including electrodes on inner faces of these substrates for switching each picture element or pixel defined by the arrangement of electrodes. Liquid crystal material ~~id~~is filled in a space between these substrates which are sealed at their periphery, while the detailed configurations are described later.

Please replace the paragraph beginning on page 1, line 26, with the following rewritten paragraph:

The widely used liquid crystal materials ~~in~~used these days for the liquid crystal display devices are; super twisted nematic liquid crystal and twisted nematic liquid crystal, which are hereinafter referred to as STN and TN respectively. The liquid crystal display of STN driven through a simple-matrix-type electrode configuration, which is referred to as simple matrix, is liable to generate image degradation caused by electrical cross-talk between picture elements or pixels, while the relatively low manufacturing cost results from the use of the simple matrix. The liquid crystal display of STN driven through the simple matrix also has undesirable response time (slow response time) for displaying dynamic images such as moving pictures.

Please replace the paragraph beginning on page 2, line 26, with the following rewritten paragraph:

It is well known that a certain type of liquid crystal material has spontaneous polarization, and a ferroelectric liquid crystal, which is referred to as FLC hereinafter, is a representative one of this type. This type of liquid crystal material is characterized by its fast response time ranging from several to several ~~hundreds~~hundred microseconds, which is approximately one ~~hundreds~~hundred times faster ~~as~~than that of TN liquid crystal. Therefore, this type of material may solve the problem related to the response time.

Please replace the paragraph beginning on page 3, line 8, with the following rewritten paragraph:

The FLC also has a characteristic such that liquid crystal molecules of the FLC always ~~maintains~~maintain their axis parallel to an appropriately treated surface of a substrate contacting ~~with~~ the crystal. This characteristic leads to extremely smaller variation of index of refraction of the crystal according to view direction than that of TN or STN liquid crystals, resulting in a wider viewing angle of display panels using FLC material. Therefore the FLC material also has the advantage suitable for the liquid crystal as the material for a display panel.

Please replace the paragraph beginning on page 4, line 5, with the following rewritten paragraph:

There is provided a liquid crystal display including a panel using a liquid crystal material having spontaneous polarization, such as ~~ferroelectroic~~ferroelectric liquid crystal (FLC), having a faster response time suitable to display dynamic images. The FLC has the disadvantage caused by the incomplete memory effect during driving for displaying "black" in several frames, where the light transmittance is preferably desired to be zero. ~~Due to preventing~~ To prevent the decrease of contrast ratio caused by the incomplete memory effect, the panel in the display ~~are~~is driven by signals so that the driving signals are applied across the picture element, where the signals are positively or negatively offset with respect to the reference voltage of the panel.

Please replace the paragraph beginning on page 4, line 20, with the following rewritten paragraph:

In another aspect of the present invention, there is ~~proved~~provided a crystal display panel such that a voltage applied to a common electrode provided on a face of ~~an~~a substrate is offset positively or negatively to improve the contrast ratio.

Please replace the paragraph beginning on page 4, line 24, with the following rewritten paragraph:

In a further aspect of the present invention, there is provided a liquid crystal display panel such that data signal applied to data ~~signal~~signals electrode ~~is~~are offset positively or negatively to improve the contrast ratio.

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Please replace the paragraph beginning on page 7, line 5, with the following rewritten paragraph:

More in detail, each of FIGs. 1A1 to 1A6 schematically show gate pulses or scan pulses 101 to 106 applied to relevant scanning bus line respectively~~,~~. ~~each~~Each of the scanning bus lines is electrically connected to each gate electrode of thin film transistors (TFTs) as switching devices in the active matrix. During the application of the gate pulse 101, for example, to a scanning bus line the relevant TFTs turn on, and turn off if there is no application of the gate pulse. As shown in FIGs. 1A1 to 1A6, the gate pulses 101 to 106 are applied in sequence to each scanning bus line, hence these gate pluses 101 to 106 sequentially scan from the first scanning bus line to the last scanning bus line, while FIGs. 1A1 to 1A6 show only six gate pulses for six row lines for example.

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Please replace the paragraph beginning on page 7, line 16, with the following rewritten paragraph:

FIG. 1B schematically shows the data signals 111 to 116 and 111' to 111' during ~~a~~ one frame, which is described in detail hereinafter, to be applied to each of the six picture elements P1 to P6 for controlling the electrical potential occurring across the

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picture element P1 to P6 in synchronism with on or off state of the TFTs driven by the gate pulses 101 to 106 shown in FIGs. 1A1 to 1A6. The data signal 111 during a sub-frame 131, which is described in detail hereinafter, in synchronism with the gate pulse 101 shown in FIGs. $1A1_1$ is applied to the relevant picture element P1.

Please replace the paragraph beginning on page 7, line 25, with the following rewritten paragraph:

FIG. 1C shows an electrical potential set to 0 V of a common electrode provided on an inner face of substrate opposing to the substrate having the active matrix, where a pair of these substrates are arranged so that the common electrode ~~faces~~ facing to the active matrix and the FLC material is provided between these substrates.

Please replace the paragraph beginning on page 8, line 16, with the following rewritten paragraph:

On the contrary to this case, it is possible to arrange the display according to polarizer films provided on the outer faces of substrates so as to set the elements P1 to P6 ~~being~~ in the block mode, while the polarity of data signals 111 to 116 are same in ~~FIGs.~~ Fig. 1B. Similarly, the elements P1 to P6 except P5 driven by the signal data 111' to 114' and 116' respectively can be set as the light transmissible modes.

Please replace the paragraph beginning on page 8, line 22, with the following rewritten paragraph:

From the view point of driving a liquid crystal and a reliability of a pulse generator for generating data signals applied to the liquid crystal, it is preferable that each amplitude of data signal in the white sub-frame 131 preferably be inversely equal to corresponding ~~each amplitude~~amplitudes of the data signal in the black sub-frame 132, and the liquid crystal is driven in a order of white writing and black writing, as shown in FIG. 1B.

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Please replace the paragraph beginning on page 9, line 2, with the following rewritten paragraph:

Therefore, a picture element desired to display ~~"back"~~"black" in the white writing sub- frame should be kept at 0 V during both sub-frames periods.

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Please replace the paragraph beginning on page 10, line 21, with the following rewritten paragraph:

Image data from an external device (not shown) are inputted into a control signal generating circuit 20 and stored in memory provided within the circuit 20. The image data then are converted to respective pixel data corresponding to each picture element in the panel 1. The pixel data in turn are sent to a data driver 22 in which the pixel data are converted to serial data for each ~~lines~~line and written to a corresponding

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data bus line, while a synchronizing signal is sent from the circuit 20 to a scanning driver 21 for generating scanning pulses by which the gates of TFTs connected to each of data bus lines are turn on. The scanning pulses are sequentially input to each scanning bus ~~lines~~line.

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Please replace the paragraph beginning on page 11, line 5, with the following rewritten paragraph:

~~The each~~ Each data signal inputted to data bus line can apply the voltage of data signal across each picture element during the gate of the TFT 11, in the relevant picture element, being turned on.

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Please replace the paragraph beginning on page 11, line 8, with the following rewritten paragraph:

~~With referring~~ Referring to FIGs. 4A1 to 4A6, these signals are applied to scanning bus lines relayed to six picture elements arranged on a same data bus line as similar ~~as in~~to the case of FIG. 1. The pulses 201 to 206 are scanning pulses which are applied to corresponding scanning bus lines. FIG. 4B shows a pulse train ~~composing~~of signals for six picture elements P1 to P6, for example, which are applied in synchronism with the relevant scanning pulses 201 to 206. FIG. 4C shows a voltage offset for compensation of the incompleteness of memory effect of the FLC. And FIGs. 4D1 to 4D6 show each potential appeared across each picture elements P1 to P6 when the data

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signals 211 to 216, 211' to 216', 221 to 226, 221' to 226' in FIG. 4B respectively during each sub-frame.

Please replace the paragraph beginning on page 11, line 19, with the following rewritten paragraph:

As shown in FIG. 4C, the common electrode voltage control circuit 6 supplies the common electrode 80 with the voltage ΔVofs which is offset from the reference level in the panel 1 so as to provide a stable "black" presentation, where in this embodiment ΔVofs has a positive polarity. The data signals 211 to 216, 211' to 216', 221 to 226, and 221' to 226' as shown in FIG. 4B, are applied to data bus ~~line~~lines for energizing each corresponding picture ~~element~~element P1 to P6 during the relevant TFT being turned on by the corresponding gate scanning pulses 211 to 216. As described above, as well in the first preferred embodiment each data signal for a picture element in sub-frame 231 for writing "white" and sub-frame 232 for writing "black" in a frame 230 respectively has opposite polarity and same amplitude.

Please replace the paragraph beginning on page 12, line 11, with the following rewritten paragraph:

On one ~~of faces~~face of the substrate 2 there is provided the active matrix for the liquid crystal panel size of a 12.1-in. diagonal in which pixel pitches in row and

column direction are 0.1025 and 0.3075 mm respectively, and the number of pixels is 800X3X600, where a pixel comprises three picture elements or sub-pixel which are arranged in row direction, therefor the pixel is of a square (0.1025X3 by 0.3075 mm). On one ~~of faces~~face of the substrate 3 there is provided a common electrode 80 deposited over a color filter 61 composed of sub-filters for three colors of red, green, and blue which are formed at the same pitches (0.1025 mm) in the row direction in this embodiment.

Please replace the paragraph beginning on page 12, line 21, with the following rewritten paragraph:

A thin layer of polyimide is coated on a face with the active matrix of substrate 2 and on a face over the color filter 61 on the substrate 3, after washing the substrates 2 and 3. After appropriate treatments, such as cure or baking, ~~each surface~~the surfaces of the layers of 20 nm thick ~~becomes an~~become alignment layers 70 and 71 after being buffered or rubbed in a single direction by a soft cloth, such as rayon.

Please replace the paragraph beginning on page 13, line 1, with the following rewritten paragraph:

Opposing each of the alignment layers 70 and 71 ~~each other~~, the substrates 2 and 3 spaced by distributed spacers made of silica of about 1.6 μm in average particle size are sealed along the periphery thereof. And then, the ferroelectric liquid crystal

material 12 including naphthalic liquid crystal as the chief ingredient (A. Mochizuki, et. al: Ferroelectrics,133,353,(1991)) is filled in the space between the substrates 2 and 3.

Please replace the paragraph beginning on page 13, line 8, with the following rewritten paragraph:

Each polarizer film 65 (Nitto-Denko: NPF-EG1225DU) is provided on each outer surface of the sealed substrates 2 and 3 so as to keep the relation of cross nicols condition each other, where ~~back~~black is presented when the longitudinal axis of molecule of the ferroelectric liquid crystal is tilted by the application of negative voltage to the data bus line.

Please replace the paragraph beginning on page 14, line 16, with the following rewritten paragraph:

Furthermore, Fig. 7 shows a variation of contrast ratio of this display panel 1, where the amplitude of offset voltage, Δofs applied to the common electrode 80 has been selected in the range 0 to 5 V. The ratio was calculated from the light transmittance factor ~~of~~ at black presentation (amplitude of data signal: 0 V) and at white presentation (amplitude of data signal: 7 V), while the amplitude of the offset voltage is selected in the range 0 to 5 V. If the desired contrast ratio is more than 100:1, the sufficient contrast ratio is performed in this display panel 1 in the range of 0.5 to 2 V of the offset voltage.

Please replace the paragraph beginning on page 15, line 3, with the following rewritten paragraph:

On one ~~of faces~~face of the substrate 301 there is provided ~~a~~an active matrix for the liquid crystal panel size of a 12.1-in. diagonal in which pixel pitches in line and column direction are 0.3075 and 0.3075 mm respectively, and the number of picture ~~element~~elements is 800X600. There is provided a transparent common electrode 311 deposited over one of the faces of the substrate 310. A thin layer of polyimide has been coated on each face ~~with~~of the active matrix and face ~~with~~ transparent common ~~electrode~~electrodes of the washed substrates 300 and 310 respectively. After appropriate treatment, such as cure or baking, each surface of the cured layer of 20 nm thick becomes alignment layers 320 and 330 respectively after buffered or rubbed in a single direction by a soft cloth, such as rayon.

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Please replace the paragraph beginning on page 15, line 14, with the following rewritten paragraph:

Opposing each of alignment layers 320 and 330 ~~each other~~, the substrates 300 and 310 spaced by distributed spacers made of silica of about 1.6 μm in average particle size are sealed along periphery thereof. And then, the ferroelectric liquid crystal material 360 including naphthalic liquid crystal as the chief ingredient (A. Mochizuki, et. al: Ferroelectrics,133,353,(1991)) is filled in the space between the substrates 300 and 310.

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Please replace the paragraph beginning on page 15, line 21, with the following rewritten paragraph:

Each of polarizer films 340 (Nitto-Denko: NPF-EG1225DU) is provided on each outer surface of the sealed substrates 300 and 310 so as to keep the relation of cross nicols condition each other, where ~~back~~black is presented by tilting of the longitudinal axis of molecule of the ferroelectric liquid crystal.

Please replace the paragraph beginning on page 16, line 19, with the following rewritten paragraph:

In this embodiment, a full color presentation is composed of three frames, each of which is used for presentation of a chromatic color. In synchronism with ~~of~~ each frame, the source 7 is energized to emit a corresponding color alternately, where the lighting method is well known as a field sequential method. The desirable full color images are dynamically and clearly presented.

Please replace the paragraph beginning on page 16, line 25, with the following rewritten paragraph:

Comparing the panel 301 with the panel 1 in the first embodiment, the number of picture ~~element~~elements of the panel 301 in the second embodiment becomes 1/3 of the number of picture ~~element~~elements of the panel 1 in the first embodiment,

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Please replace the paragraph beginning on page 17, line 11, with the following rewritten paragraph:

With ~~referenced~~reference to FIG. 10, the third preferred embodiment is shown. The panel 1 in the first preferred embodiment is driven by the signals shown in FIGs. 10A1 to 10A6, 10B, and 10C. That is, a voltage of 0 V is applied to the common electrode as shown in FIG. 10C, and each of data signals offset negatively by 1 V is applied to the data bus line as shown in FIG. 10B. In this case, each voltage appearing A28 across the picture element is shown in FIGs. 10D1 to 10D6, which are similar to each in FIGs. 4D1 to 4D6 respectively. This leads to a similar performance according to the contrast ratio. The driving method in the third preferred embodiment is applicable to a liquid crystal display panel which has no common electrode, such as a panel driven through a simple matrix.